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generally be expressed in terms of the corrections of the circular elements and the excentricity and longitude of the perihelion. Let e be the excentricity and π the longitude of the peri-planet; then, putting $e \cos \pi = \psi$ and $e \sin \pi = \eta$, we may express $\Delta - \Delta_0$ and $Q - Q_0$ in terms of seven unknown small quantities, viz.: the corrections of the five elements already involved in the circular hypothesis and the quantities ψ and η. An equation of condition involving these quantities may be formed for every observation, whether of distance or position; and from the totality of such equations, the values of the unknown quantities may be deduced by the application of the method of least squares.

Extracts of a Letter from M. Otto Struve to the Astronomer Royal, dated $\frac{15}{3}$ January, 1853.

"As to what regards Villarceau's remarks on the differences in right ascension of feeble comets, as observed by different instruments and methods, I am quite of opinion that similar differences must exist, and that for different reasons, but principally produced by the different optical power of the telescopes. The nature of these differences is, perhaps, not yet sufficiently explained for all different methods of observation; but, generally speaking, the most powerful telescopes must furnish the most exact results; and for this reason, I think, Villarceau has done wrong to attribute a higher precision to the Königsberg observations than to those made with the Northumberland telescope, especially as Wichmann himself thinks the accuracy of his observations of D'Arrest's comet has seriously been injured by the faintness of the object, while Challis does not mention at all that these observations have given him particular trouble."

"Last month the University of Dorpat celebrated the fiftieth anniversary of its renewed existence. On this occasion I wrote a dissertation, entitled *Narratio de Parallaxi Stellæ α Lyræ*. In this tract I have given, besides some general remarks on the determination of parallaxes, the result of fifteen months' observation on the parallax of *α Lyræ*. The comparison star used by me is identical with that of my father; but the result does not so well agree with the former, as I thought it would do. My observations, which, as to accuracy, appear to be considerably superior to those of my father, make the parallax by the

Angles of position $= +0''\cdot145 \pm 0''\cdot016$
By the distances $= +0''\cdot140 \pm 0''\cdot025$

"In combining these results with the former values obtained by W. Struve and Peters, the parallax of *α Lyræ* is found in the mean $= +0''\cdot1549 \pm 0''\cdot0120$.

"I have indicated in the same tract several reasons, which will account in part for the larger parallax found by my father, but the

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principal part of the difference must be attributed to an accumulation of accidental errors: since last summer I am engaged in a similar way with the parallax of 61 *Cygni.*

"The present winter is again very unfavourable for astronomical observations; since nearly six weeks we have not seen the sun. It is for this reason that I have not yet been able to publish my observations on Biela's comet, which require a new determination of the comparison star. The number of observations I have got of that object is very limited. They consist of five observations of the northern head, and three of the companion, made all in the interval between the 18th and 28th September, 1852; but I think they are all pretty exact, and will probably prove important, as it appears that this object has not been observed elsewhere, but by Prof. Secchi at Rome.* It was very interesting to see that the mutual action of the two heads still appeared to continue, notwithstanding their considerably increased relative distances. On the first day, Sept. 20, the southern head was larger than the other, and five days afterwards (Sept. 25) the northern head was brighter and considerably larger. It was obvious that the principal stream of light followed in both heads almost the direction of the line which joined the two heads.

"Mr. Lassell has sent me from Malta a circumstantial notice of his observations of *Saturn's* rings. Besides the transparency of the obscure ring, the most interesting observation appears to be the disappearance of the division in the obscure ring, which is confirmed by my own observations of the present winter. This division being easily seen last year, and with perfect surety, there is no doubt now, that the obscure ring undergoes rapid changes in very short intervals.

"It has given me great satisfaction to learn that the British Association has recommended to the Royal Society a new research on the irradiation of the Huyghenian telescope. The existing uncertainty in the amount of this quantity is, I think, the principal objection to be made against the results I have deduced. The result of the proposed research will, therefore, decide the question, which I could only exhibit in my memoir as the most probable result to be derived from the existing observations."

Extracts of a Letter from Sig. Secchi to Captain Manners, R.N. dated January 28, 1853.

"We have given instructions to Mr. Mertz to furnish us with a complete refractor, of 9 inches aperture and 14 feet focal length. The erection of the new observatory is going on well, and I hope before summer to have the principal part of the building itself quite

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* At the time of writing this letter M. Struve was not aware that the comet had been observed at the Berlin Observatory (*Ast. Nach.* No. 832, p. 246), and also at Cambridge, by Professor Challis (*Ast. Nach.* No. 836, p. 325).—R. G.

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